

Summary of qualifications and capabilities

- Integrated miniature ultra-high-vacuum systems
- Vacuum compatible electrical feed-throughs and optical access
- Atom sources
- Atom traps
- Integrated optical elements
- Stabilized laser systems
- Design and fabrication of custom DFB and VCSEL lasers
- Optical subassemblies

We seek to join a team that is pursuing research and development in Quantum Computing with neutral atom or ion qubits

Enabling technologies for Quantum Computing based on neutral atoms or ions

Vacuum technology

- Integrated UHV mini-vacuum cells
- Planar integrated miniature UHV vacuum systems
 - Glass/Silicon micro-machining
 - Multiple chambers
 - Differential pumping
 - Integrated:
 - Electrical feed-throughs
 - Atom source
 - Getters
 - Ion pump
 - Atom trap



Atom sources

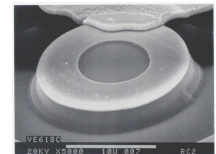
- Cold atom sources
 - Self-contained pyramid MOT
- Controllable atom dispensers
 - Novel alkali-metal dispensers
 - ⁸⁷Rb isotopically enriched dispensers

Atom detection and optics

- Components inside vacuum system
 - UHV compatible
 - High temperature compatible
- Optical access

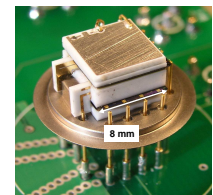
Lasers

- Custom DFB and VCSEL lasers for atom pumping
- Laser systems for atom cooling



Integration of opto-atomic systems

- Example of a RF-interrogated, end transition CSAC atomic clock



Self-contained portable cold atom systems

- System integration
 - Physics package
 - Laser system
 - Control electronics
 - Instrumentation

Parts of this work has been developed under:

- DARPA gBECi Program in collaboration with University of Colorado Boulder, Vescent Photonics, Teledyne
- DARPA CSAC Program